

From: [Eric Blischke](#)  
To: [Carl Stivers](#); [rjw@nwnatural.com](mailto:rjw@nwnatural.com)  
Cc: [Chip Humphrey](#); [Jennifer Woronets](#)  
Subject: Re: LWG Proposed Groundwater RAO  
Date: 09/30/2009 09:47 AM

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Bob, EPA has reviewed the proposed groundwater RAO and can not accept it as written because it is inconsistent with EPA's August 7, 2009 RAOs. However, we do appreciate that combining the sediment and groundwater RAOs as currently written may be confusing. As a result, we have developed separate human health and ecological RAOs for groundwater. We will further modify RAOs 1,2,4 and 5 to exclude the groundwater language. The proposed RAOs and supporting language are provided below. We are prepared to incorporate the two groundwater RAOs into EPA's August 7, 2009 RAOs as a directive to the LWG. Please contact us later today to discuss further.

Thanks, Eric

#### **RAO – Human Health Groundwater:**

**Reduce to acceptable levels human health risks resulting from direct exposure to contaminated groundwater and indirect exposure to contaminated groundwater through fish and shellfish consumption, and comply with identified ARARs.**

This RAO applies to human health risks from ingesting groundwater beneath the Willamette River that exceeds ARARs and indirect exposure to COCs in groundwater plumes discharging to the Willamette River found to have an unacceptable risk in the risk assessment based on fish and shellfish consumption with the understanding that groundwater plumes will be controlled to achieve ARARs and risk-based remediation goals through upland source control actions. The goal for this RAO is to reduce risks to human health from COC concentrations in contaminated groundwater through sediment remedies at the site, comply with chemical-specific ARARs identified for the site, and protect beneficial uses of groundwater and the Willamette River at the site. For groundwater plumes that are controlled through effective upland source control measures, this RAO would apply to groundwater plumes downgradient of the source control measure.

#### **RAO – Ecological Groundwater:**

**Reduce to acceptable levels the risks to ecological receptors resulting from the ingestion of and direct contact with contaminated groundwater and indirect exposures through ingestion of prey via bioaccumulation pathways from groundwater, and comply with identified ARARs.**

This RAO applies to all ecological receptors found to have an unacceptable risk in the risk assessment via exposure to contaminated groundwater plumes discharging to the Willamette River and through ingestion of prey with the understanding that groundwater plumes will be controlled to achieve ARARs and risk-based remediation goals through upland source control actions. The goal is to reduce risks to ecological receptors from COC concentrations in contaminated groundwater through sediment remedies at the site, prevent unacceptable effects on the survival, growth, and reproduction of ecological receptors at the site, and comply with chemical-specific

ARARs identified for the site. For groundwater plumes that are controlled through effective upland source control measures, this RAO would apply to groundwater plumes downgradient of the source control measure.

▼ "Carl Stivers" ---09/08/2009 08:37:09 PM---Eric and Chip --

"Carl Stivers"  
<cstivers@anchorqea.com>

09/08/2009 08:35 PM

To Eric Blischke/R10/USEPA/US@EPA, Chip  
Humphrey/R10/USEPA/US@EPA  
cc "Jennifer Woronets"  
<jworonets@anchorqea.com>  
Subject LWG Proposed Groundwater RAO

Eric and Chip --

Here is the text that we discussed today.

**RAO Groundwater - Address groundwater contamination beneath the Willamette River, as necessary, to protect the designated beneficial uses of the Willamette River from impairment caused by upwelling of contaminated groundwater, protect the beneficial use of groundwater beneath the Willamette River, and comply with identified ARARs for groundwater applicable to the beneficial uses addressed by this RAO.**

This RAO applies to groundwater contamination beneath the Willamette River at appropriate points of compliance to protect these beneficial uses, with the understanding that groundwater plumes that impair the designated beneficial uses will be addressed through upland source control actions.

Thanks.

Carl

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